THE

WESTERN

Medical and Physical Journal.

OCTOBER, 1827.

ORIGINAL ESSAYS AND CASES.

ART. I.—*Observations on the atmospheric origin of the Endemic Sick Stomach of particular situations in the Western states.*

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PRIOR to 1812 or '14, little or nothing had been published upon this disease: since which, however, some ten or twelve respectable essays have appeared in the Medical Journals of Philadelphia, and the one conducted by Professor Godman, late of this city.

Whilst the subject has been under investigation by the profession, three opinions, relative to its cause, have been advanced; each of which have been supported by men of talents and professional industry.

The first is, that it has its origin in a vegetable poison; that this vegetable is eaten by our domestic animals, and introduced into the human stomach by using their flesh, milk, butter or cheese.

The second opinion is, that it is of atmospheric origin, and governed by most of the laws which influence other Autumnal diseases peculiar to situations, on water courses, in many parts of the Western country.

A third cause assigned is, that it is produced by a mineral poison, held in solution by water emanating from certain springs, in very dry seasons.

During the years 1820, '1, '2 and '3, I practiced my profession, in Campbell and Boone counties, Kentucky, where I often met with the complaint. It being a new disease, and one that had been attended with great mortality, and consequently excited much alarm with the inhabitants, within the limits of my practice, caused me to direct my attention particularly to its history and best mode of cure.

The facts obtained, during my intercourse with it, were embodied in my Inaugural Thesis, from which I shall extract liberally, and present to the public, in this essay; endeavoring to support my views by whatever testimony I can find in the several papers, published before and since the date of my observations; adding a few circumstances that have furnished me with additional support, in the opinions I then advanced of its origin.

In the investigation of all anomalous diseases, where the cause is unknown, or very obscure, the most philosophical course of inquiry is, first to consider its analogy to those known diseases to which it bears the greatest resemblance, and then, if the treatment will sustain the comparison, it is circumstantially proven that there is a proportionate relation in the cause of either.

Where a disease appears as an epidemic, obeying most or all of the laws that govern other epidemics, such as appearing in the same district of country at the same season of the year, having nearly the same critical days, requiring a similar practice, and subject to relapses from the *same* causes; and also, at other times, appearing sporadically; it will be rational to conclude, that they emanate from a corresponding similar source. If there grow in a section of country a poisonous vegetable, such as the *cicuta maculata* for example, which will produce disease and death when eaten, it is not likely that the disease produced by eating it will prevail as an epidemic; but appear individually, when eaten, at any time of the year.

We will now compare some of the prominent features of this disease with the characteristic of Autumnal fever.

1. Autumnal fevers appear in certain parts of the country as an epidemic, and occur mostly in the fall and fore part of winter. 2. They run their course in from five to fifteen days. 3. The abdominal organs are primarily affected, and in the treatment our remedies are principally directed to these viscera. 4. Autumnal bilious fevers are subject to relapses from excesses in eating or drinking—exposures to cold, damp, or hot weather, fatigue, watchfulness, or suffering the bowels to remain too long costive. 5. Persons who have had the bilious fever once, are liable to annual returns of it, though each successive relapse is less dangerous than the former. 6. Families, consisting of many individuals, may all be equally exposed to the causes of Autumnal bilious fever, and but one, or a part of the whole, have the disease. Now let us see how far the above will compare with the general laws governing sick stomach.

1. That it appears as an epidemic. Dr. Coleman says, "The time at which it is most common, is that of the summer and autumn." Dr. Bennett remarks that "this disease prevails most in autumn, after the summer vegetation is destroyed." Dr. Chamberlin tells us that, "the months in which it rages with most violence, are December and January." Dr. Crookshank reports it as "most prevalent in the latter part of autumn and beginning of winter." I could cite other authorities, if it were necessary, to prove that the disease does, generally, appear as one of the autumnal epidemics of the country; but the above will be sufficient.

2. It continues from five to fifteen days. Dr. Coleman says that this disease "seldom exceeds the ninth, or stops short of the seventh day, unless in cases of fatal termination." Dr. Bennett asserts that "the duration of this malady is various, but generally from one to eight days." I treated thirty cases, whilst in Kentucky, and they all terminated favourably, save one, between five and thirteen days; though a number of them relapsed, and consumed, generally, as much time in the second recovery, as in the first.

3. That the abdominal viscera are first affected, will be inferred from the symptoms: which are—constant nausea and vomiting; a burning sensation from the stomach, up the œsophagus to the mouth, accompanied with an insatiable thirst; the breath and matter vomited, have a disagreeable, pungent, acrid odour; an obstinate constipation of the bowels; great muscular prostration; restlessness; hypochondriacal gloominess, and fear of dying; anxiety; laborious respiration: the tongue generally exhibits a yellow fur in its centre, the edges appearing red and shining; pulse often regular and full, though sometimes a little increased in frequency, and somewhat tense and wiry; the voice is frequently ifhpaired, so that in ten or twelve hours from the attack, the patient is unable to speak above a whisper. Such were the symptoms in those cases that I treated. As the disease advances, other symptoms present themselves, involving other viscera, undoubtedly impaired through sympathy with the organs primarily affected. This is well known to be a common occurrence in all cases of abdominal disease, and therefore proves nothing peculiar in this. The remedies used successfully by me, were alkalies, drastic cathartics, and restoratives, or tonics. I never used bleeding nor blistering, but in one case. I derived no apparent benefit from their use in that case, but rather the reverse, and therefore did not resort to them again. Dr. Bennett's experience accords with mine in relation to the use of blood-letting. "Bleeding," he says, "has appeared in all cases, where its use has fallen under my observation, to be attended with bad consequences." Others, however, have recommended their use. Dr. Coleman says, that "blood-letting has not been employed as a general remedy in this affection, nor does it appear essential to a cure in most cases. From my experience, I deem it of much greater consequence, than is generally apprehended. In cases where the brain begins to suffer, it is the remedy on which I chiefly rely. Patients have borne it to a great extent with manifest benefit." He further says, "that where

the patient was evidently in the last stages of the disease, vomiting a black porraceus matter, with a weak, fluttering pulse, and in a comatose state, *blisters*, with the free use of stimulants, were of evident service." Dr. Crookshank recommends bleeding, "if the pulse be full and hard, to relieve inflammation if present, and to prevent its appearance afterwards; he also thinks epispasticks beneficial."

Those physicians who advise bleeding, recommend it conditionally, if certain symptoms present themselves, which symptoms, they all seem virtually to admit, appear, not as a necessary characteristic of the disease, but incidentally—all of which I am willing to concede. Those, also, who approve of blisters, do not prescribe them, to counteract local inflammation; for Dr. Coleman says, that "when symptoms of gangrene of the stomach begin to make their appearance, *stimulants*, blisters, sinapisms, and *stimulating* enemata, are often sufficient to the patient's recovery." They must, therefore, be used for the purpose of arousing the sinking energies of the system; for the same purpose that we would use them in the low typhus stages of bilious fever.

4. Persons who have lately recovered from an attack of *sick stomach*, are subject to relapses, from the following causes, viz: Excesses in eating or drinking; exposures to cold, damp, or hot weather; or from fatigue. "From imprudent exposures," says Dr. Coleman, "those who have had this disease in its active form, are liable to relapses, but, perhaps, not more so, than in our common autumnal diseases." The following two cases occurred in my own practice:

In 1823, I attended on Mr. A——, who had long been threatened with an attack of the disease. He set out for Cincinnati with a boat load of wood. When within three miles of the city, he left his boat and company, to collect from the adjoining forest, some hoop-poles. Whilst cutting and gathering them, he was overtaken by a severe thunder-shower. He, at the time it began to rain, was fatigued, and perspiring copiously. The disease was brought into

action, and prostrated him immediately; so much so, that he was unable to reach his boat and company, and consequently, was exposed to a severe rain-storm of two or three hours' duration. After the rain, his comrades sought, found, and took him to the nearest *cabin*, where he was found by me with the disease in its most malignant form. I pursued my accustomed practice, and in five days, he set out for home in a wagon, a distance of twelve miles, in better health than when he left it six days before, though extremely weak. He had had no symptoms of the disease for two days; bowels soluble, and appetite good; no vomiting of course. He, however, when within two miles of home, evidently from fatigue, by riding, relapsed. The same disease returned with as much violence as its predecessor, and, from his debilitated state, came near destroying him. All the symptoms exhibited in the first attack, appeared in the second. The nausea, vomiting, and burning sensation of the stomach, œsophagus and throat, as distressing as before. The bowels paralyzed, as it were, in a moment, requiring all the attention, and all the means in my power, to move them. He finally recovered, after a confinement of about twelve days, from the relapse.

In 1822, I was called to see Mrs. O——, the mother of a large family, aged about forty-five. She was thought, by her family, to be dying, when I arrived. In short, she was very ill; had the *sick stomach* in perfection; all the symptoms, characteristick of the disease, were present, she had been sick three days, the system prostrated, and her situation hazardous, though not dying, for she recovered and returned to hard labour for six weeks. When she, from fatigue, and suffering her bowels to remain costive for a number of days, relapsed; this second attack was as well marked as the first, and continued longer, though she finally recovered. It would be proper to remark that neither of the above persons ever tasted animal food, excepting fowls, from the recovery of the first attack up to the time of the relapse. I was assured in both cases, that neither beef,

butter, milk, nor cheese, had been used in either of their families, one for two, the other for three years. They had been proscribed, from a belief in their agency to produce the disease. The histories of the above cases go to support the opinion, advanced by Dr. C. as before stated, that the *sick stomach* is as subject to relapses as others of our autumnal diseases.

5. It frequently attacks one or more of a family, when all have been, apparently, equally exposed, and when all have eaten from the same table, or stock of provisions. Dr. Chamberlin remarks that "sometimes it attacks one or two members of a family, to the exclusion of all the rest."

In 1821, I attended on Mr. W's. family, who lived on a large tract of bottom land, within the angle formed by the junction of *Bank-Lick* with Licking River, four miles from its entrance into the Ohio, opposite Cincinnati. His family consisted of himself, wife, and four children unmarried; also two sons and three daughters married, who had from two to five children each, making in the whole about twenty-five persons, all living together upon the same section of land: they all ate from the same beeves, and in fact all their stock, labour, living, &c. were in common. During the years 1821—2, I had three several cases in this family; one the first, and two the second. A few of the other members of the family, during the first year, had the bilious intermitting, or remitting fever; and on the second, a number had dysentery, and two, a son aged 20, and a married daughter, had the *sick stomach.* The son was first seized with the sick stomach, and before he recovered his strength, was violently attacked with dysentery, of which he died. The above cases show that large families, all, apparently, equally exposed to the causes of the malady, may the greater part of them, be diseased from other, and more common, autumnal epidemics, at the same time their relatives, and associates in the field and at the table, are suffering from the *sick stomach.*

6. It also, occasionally, appears sporadically. Dr. Bennet says that " sporadic cases occur in all seasons of the year." Dr. Coleman states that " it is occasionally seen in all the seasons." I have seen a few cases during the spring and summer months, though I believe its occurrence during the summer is very rare.

It is frequently met with, in connexion with other autumnal epidemics, especially bilious intermitting and remitting fevers, rendering them generally more malignant and unmanageable. It has been distinctly stated by those who have written upon the subject, that the peculiar smell of the breath, and matter vomited, could not be mistaken by those accustomed to it, because it was *sui generis*. Such, I believe, is the fact, and therefore I cannot be mistaken, when I say that I have, in a number of instances, smelt the same odour, from matter vomited, in ordinary cases of gastric derangement, occurring in persons, who for years, perhaps, have never been exposed to any other atmosphere, than that of Cincinnati. In a number of cases of bilious fever occurring in the sick stomach districts, I have met with the same odour, accompanied with a peculiar irritability of the stomach, and an obstinate constipation of the bowels; otherwise, the cases were well marked, as ordinary autumnal fevers.

One case of bilious fever, peculiarly marked with symptoms of *sick stomach*, occurred in this city, in the fall of 1826. The patient was a mother, aged about 34, who had, about two years before, moved from a section of the country, noted for the prevalence of *this malady;* she was seen by a number of the Profession, and it was pronounced a case of bilious fever, *marked with peculiar symptoms.* There was constant vomiting, and accompanying it the well known odour of the *sick stomach* breath; the bowels obstinately costive, not to be moved excepting by repeated doses of the most drastic purgatives. There was that peculiar and distressing muscular prostration,—also dejection of spirits, &c.

These symptoms claimed a consideration in the practice, which was adapted to the fever, as modified by its companion, *sick stomach.* She ultimately recovered.

I have met with other similar cases, in Covington, Ky. where, as well as in Cincinnati, a case of genuine sick stomach was never known to occur, but with those lately from its districts.

We have now given proofs, positive, sufficient we think, to render the belief probable, that the disease has its origin in common with others of our autumnal, abdominal diseases: and will therefore direct the attention of our readers to the few following negative facts:

1. I have known persons to have the disease, in its most malignant form, who had eaten neither milk, butter, nor beef for three years. They could not be prevailed upon even to taste them.

2. I have known them to relapse, (after being able to walk about,) from severe exercise, when no kind of animal food had been eaten.

3. It is a common practice with the people, who live in sections of country where the disease prevails, to send their butter and beef to Cincinnati, especially such, as they will not eat themselves, for fear of puking; and this butter and beef is used by the people in town; but in them, it does not produce the sick stomach.

4. If it were produced by a poisonous plant, it would not be so limited in its location; for this plant would grow in similar soils, situations and latitude, every where: but we find the sick stomach limited to very few districts, and those not exactly alike, either in soil or general aspect.

5. It frequently occurs in the winter season, when the cows, that give milk, have been kept up all winter, and fed on corn and fodder.

6. If it is taken from a plant, why does it not prevail mostly in the spring, and summer, when cows exist, almost entirely, on shrubs and herbs? On the contrary, we find that it prevails, almost exclusively, in the fall and winter. I know

it has been said, that the plant is an evergreen; but cows do not ramble far in the winter, and in general, they search for buds and twigs, and not for herbaceous plants. Therefore, a disease that is *sui generis*, prevailing in certain seasons of the year as an epidemick, cannot be produced by so casual a circumstance as the cow's selecting and eating a poisonous plant; which must be subjected to the process of digestion, and assimulation, and then deposited in her bag with her milk: still will it retain its active *specific* virulency —capable of producing the same diseases?

7. Mr. C., an extensive butcher of this city, informed me, that he had procured most of the *beeves*, slaughtered by him, for the last ten years, from a section of country, where the disease prevails extensively: that he visited annually this country in the fall season; and when there, as an act of kindness, they withheld from him his favourite dish—mush and *milk*. Not one of the inhabitants, he remarked, would eat either milk, butter, or beef: he, however, reckless of consequences, used all freely.

He stated, that his purchases from that place, had averaged one thousand head a year; all of which he had sold, from his stalls, to the citizens of Cincinnati, and not one case of sick stomach had occurred from its use.

He was sure that no case had occurred; for, says he, "if my beef had produced the disease, I should have been complained of, and my business ruined." He declared that when on his purchasing tours, he had, he believed, drank milk (being very fond of it) at almost every farm house throughout the sick stomach district, and never felt the least inconvenience from it.

The above needs no comment. I shall therefore proceed to the inferences, naturally deduced from the above facts.

My opinion, as before stated, is predicated of the pathological analogy, that exists between this and other diseases, the remote causes of which are acknowledged.

I believe that the remote cause exists in the atmosphere of certain situations; and that its primitive action is on the

stomach; and eventually it excites morbid sympathies in the whole digestive system, and the ganglionic functions; at length their dependencies—the various functions of organic life; and subsequently the functions of animal life.

The remote cause acts by producing a morbid, diminished action of the stomach and liver, with a partial suspension of the peristaltic motion of the bowels; and in this situation the exciting cause is introduced, and aggravates those symptoms, and completes the first stage.

Many of the exciting causes are the same as in bilious fever; such as sudden transitions from a hot, dry, to a cold, wet atmosphere; intemperance; excessive fatigue; exposure to night air; watchfulness; and every kind of food that will augment the constipation of the bowels. Here I am willing to admit the influence of milk and new cheese. I have no doubt, that milk is sometimes the exciting cause: It acts by entirely suspending the weakened peristaltic motion of the bowels, thereby increasing the irritation of the stomach, and paralyzing the functions of the liver, and subsequently, other organs of digestion.

The exciting cause acts, either directly on the digestive organs—as intoxication, the use of milk, new cheese, or any improper diet; or indirectly through the general system—as in sudden transitions of temperature, fatigue, exposure to night air, watchfulness, &c. In the first case, increasing, directly, the torpor of the liver, the morbid irritation of the stomach, and also destroying the peristaltic motion of the bowels. In the second case, it produces the same effect indirectly, by prostrating the general system.

Before we dismiss this part of our subject, let us consider its course and necessary effects, in passing through the body of the cow, to her calf—and then into the stomach of man. When a poisonous plant is eaten by a cow, it must pass through her digestive organs, then her arterial and secretory systems, and finally into her bag: From the bag, the calf sucks it into its stomach, through which it passes—then mixes with the blood, and is distributed throughout

its body, with impunity: but when killed, and its flesh eaten by man, it produces sick stomach, with which he dies within seven days. All this must be admitted by those who believe in such an origin of the disease. Here the poison has to be mixed intimately with about seven gallons of blood, and other juices of the animal, before it gets into the stomach of man!

Finally, I have, from the above facts and circumstances, together with what I have learned from an intercourse of some years with physicians settled in different sections of the country, where the disease prevails, come to the following conclusions:

1. That the cause of the sick stomach is still somewhat doubtful, and will remain so, so long as it is sought for amongst the vegetable or mineral poisons.

2. That its great resemblance to many of our common autumnal diseases, renders it quite probable that it has, with them, a common cause, or an atmospheric origin.

3. From its appearing epidemically in the same season, annually, or biennially, and but seldom occurring sporadically, it would be just to conclude, that it was the offspring of some general agent.

4. Incidental effects never have their origin in established antecedents: and in all cases where there is a semblance of sequents, the same relation must exist in their antecedents. Therefore, if two or more diseases bear a striking and obvious resemblance, the rationale would establish a corresponding identity of origin. Hence the resemblance in most of our fall diseases; and if the sick stomach resembles, in all of its general characters, most of our fall fevers, requiring the same general practice, the conclusion is safe, that it belongs to this great family.

5. The character of the *sick stomach* is sufficiently well understood for all therapeutical purposes; but it is likely, that, before a preventive is discovered, a cause of the disease must be established.

6. The identity of this disease with the complaint in domestic animals called the *trembles*, is nothing more than conjecture; but if admitted, proves only, that they are subject to many of the maladies incident to the human family—a fact long known. I have seen in the same districts where the sick stomach, and ague and fever, were prevalent, coactively, dogs pass regularly through paroxysms of tertian ague, occurring successively at established periods.

7. And lastly—If the premium offered by the legislators of Kentucky, is to be awarded, for the discovery of the supposed plant, they are, in my opinion, in but little danger of ever having it to pay. But to add to the motive for search, I will, as proprietor of the Western Medical and Physical Journal, guarantee fifty dollars to the discoverer, to be paid whenever he presents me with the plant, accompanied by an essay, including its botanical history, and poisonous effects on man and brute.

ART. II.—*Practical Observations on the Typhoid Stage of Autumnal Fever.* By DANIEL DRAKE, M. D.

DIVERSIFIED as are the modes in which Autumnal fever makes its attack on different persons, or in successive years; its manner of terminating presents an equal number of varieties.

1. Occasionally, it is so broken in upon, by an early and energetic treatment, as to lose its character and virulence after the first, second or third paroxysm, and speedily cease.

2. Sometimes we see it hold its course for a week, or more, and suddenly terminate with critical discharges, at the close of a paroxysm.

3. More frequently, its paroxysms become lighter, and the remissions longer, until the former vanish altogether;

the latter having first become perfect intermissions, but every paroxysm still preserving much of its original character.

4. Oftener still, as the violence of the fits abates, the cold stage is lengthened, and the hot stage, though intense, is shortened; the apyrexia becomes complete, and the patient, enabled to leave his bed, continues for a longer or shorter time with ague and fever; into which he is liable to relapse, throughout the next winter and spring, or even for one or two years.

5. But the cases are not a few, in which these terminations are wanting, and in their stead, we have that which physicians have, by common consent, denominated *Typhoid.* Of the whole, this is decidedly the most unfavourable.

It is desirable to know what occasions these varieties in the declining stage of Autumnal fever; but until the *cause or causes of the disease shall be developed,* our speculations concerning the different modes in which it terminates, must be inconclusive, if not nugatory.

I am not unapprised, that physicians speak of the cause of autumnal fever in the language of absolute familiarity; but when we hear one sect designating it as a gas, which escapes from the earth; and another, as an æriform fluid, constituted by a new arrangement of some of the ultimate elements of organized bodies; while a third as clearly perceive it to be nothing, but the combined action of the heat and moisture of the atmosphere upon the body itself, I consider it excusable to doubt, whether the true cause has yet been ascertained.

Whatever it may be, we may predicate of it one of two things—either that it is not always precisely the same, or that other causes may influence its effects; for the variety which Autumnal fever presents in its course and termination, requires of us these assumptions. This, I must admit, is scarcely opening the surface; but in the present state of our knowledge, a profound analysis is manifestly impossible. Who, for instance, can tell why, in one year, Autumnal fever

shall assume a most inflammatory type; in another, run into ague and fever; or in a third, exhibit in its progress the characters of a typhus? That individual cases of each may be referred to idiosyncracies, or to obvious causes of a local origin and personal application, is a well known fact; but the inquiry relates to whole communities, who, in different years, while *apparently* under the same circumstances, will experience fevers, which present the striking varieties just named. In these cases, as the effect is general, the modifying cause cannot be particular; but what it is, I shall not attempt to conjecture.

It is of more importance to inquire, if the typhoid stage of Autumnal fever can be prevented? As far as I know, blood-letting is the only means which has been relied upon for this purpose. Its advocates are of opinion, that if employed to a sufficient degree, at an early period, it will seldom fail; but the opponents of this practice regard it as the chief cause of the effects which it is said to prevent.—That blood-letting, in an *advanced* stage of Autumnal fever, will in many cases develope typhus symptoms, I am quite convinced; and feel equally assured, that, even in the first stages, it will often fail to avert them. Some epidemics have such an inherent tendency to run into the typhoid state, that no remedy yet discovered can prevent it. This is their nature. It results from their cause, and not from the omissions or interferences of art. In such fevers, if employed at all, it should be confined to the first periods of the disease; when, in full habits, it will be harmless, if not beneficial. In epidemics which manifest no special character of this kind, blood-letting, if the existing symptoms seem to require it, may be employed more frequently; and we should never be deterred from its use, by an apprehension of supervening typhus. In such cases, it often saves the life of the patient, although it may not *cure* the disease; and when typhus symptoms ultimately ensue, after free and early bleeding, they are, in general, less formidable, than if they occur without that evacuation. In

epidemics of this kind, I have seen copious and repeated blood-lettings followed by a degree of *subsultus tendinum*, little short of that which the muscular system exhibits in chorea, or the more uncommon malady denominated *paralysis agitans*;—a condition which excites alarm, but, in most cases, yields to moderate stimulation.

The Typhoid stage of Autumnal fever, I need not describe. The physicians of the United States are well acquainted with its symptoms. The transition to it, is sometimes sudden, but oftener gradual. Pathologically, it is a state of reduced power, with morbid sensibility and contractility; in which the functions of the brain and nervous system, generally, are much more perverted than in the early stages of the fever. In many cases, it is, apparently, unattended by disease in any particular organ; but in others, there is manifest inflammatory plethora of the brain; rising, at length, into phrenitis, which occasionally becomes acute and violent.

The successful management of the Typhoid stage of Autumnal fever, requires both skill and perseverance.

I. If there be subacute phrenitis, active stimulants, and narcotics, especially the latter, are contra-indicated; while general blood-letting is scarcely more admissible. We must then cup the temples;—shave the head, keep it elevated, and make cold or sub-tepid applications;—blister, first the lower extremities, then the neck, and lastly the scalp;—maintaining the secretory and excretory functions of the portal viscera with stimulating cathartics, such as aloes, infusion of senna with bitters, rhubarb, the Blue pill and ipecacuan. At length, we may venture, at night, on small quantities of opium, with antimonial powder, or ipecacuan, in the *spiritus Mindereri*, administering at the same time moderately stimulating and hot diluents—such as weak wine whey, or an infusion of serpentaria; so as to allay the irritability of the system, sustain its sinking powers, and promote circulation and secretion in the skin.

II. If there is no cerebral inflammation, the local blood-letting and the blistering may be omitted; and stimulants administered more freely. We ought, however, constantly to bear in mind, that mere excitation of the heart and brain will not answer; but that we should also act upon the skin, the liver, and the bowels, with their *specific* stimulants,—for the cure, at last, consists in restoring healthy function. Indeed, if we neglect this, we shall soon discover, that local inflammation will be developed somewhere, most likely in the brain; and that when associated with this reduced state of the vital powers, it will in most cases prove fatal. I am convinced that many patients have been lost, by an ignorance of this important therapeutick principle. In general, we should aim at promoting cutaneous and biliary secretion at night, composing the patient with opium, added to our cholagogues and sudorifics; and excite alvine evacuation in the day. By this union of narcotics, stimulants and evacuants in the treatment of Typhoid fevers, effects the most valuable may be obtained. For if it be true, as just stated, that to stimulate without evacuating, may raise an inflammation; it is equally certain, that to evacuate without stimulating, will speedily sink the powers of the system. Under such treatment, the excretions become more and more vitiated, and *seem* to indicate a necessity for further evacuation, but this is an illusion. To the last, they exhibit increasing vitiation, if we trust to evacuants alone; while the addition of tonics and stimulants, is followed by an immediate improvement in their appearance. I know of no other disease, in which the functions of life—both organic and animal—are more generally perverted; and none, therefore, which calls for a more *complicated* treatment. We should, if possible, direct our remedies upon all the organs, in the hope of restoring the healthy action of some. Every one that is rescued, becomes, if I may be allowed the metaphor, an auxiliary to us; for either by dependence or correspondence of function, or both, it will carry into other organs a healthier condition. It is not

easy to perceive, how the opinion could have originated, that stimulants and evacuants are incompatible. They are all excitants, but some are general, and others particular or specific. The medicines which cause increased secretion from the skin, the kidneys, the liver, and the bowels, are stimulants to those organs, respectively; and it is on the healthy action which they occasion, rather than the evacuation which follows, that their efficacy in Typhoid fevers depends. When, simultaneous, or successively, we excite those viscera to their specific functions, we determine into them an increased quantity of blood and nervous influence; thus equalizing the distribution of those agents, and protecting the brain and heart from injury, under the general stimulation that is necessary to sustain the powers of the system.

To accomplish these desirable ends, a *choice* of means is absolutely necessary. The functions are overthrown, and the organs which perform them debilitated. The immediate indication is to restore a healthy condition, not to supersede one morbid action, by exciting another; and, therefore, we should prefer those medicinal agents, which, in their effects, are most analogous to the ordinary supporters of life—*excitants* rather than *irritants*. If this practical rule be correct, it follows that the *liberal* administration of calomel and tartar emetic, which is sometimes prescribed, must of necessity be prejudicial. In the state of fever now under consideration, these energetic agents are, it is true, not without their use; but they should be given solely with a view to their *moderate* action on the liver and skin; and their debilitating effects counteracted, as much as possible, by means which maintain the powers of the heart and brain. No practice could be more reprehensible, than that of prostrating the energies of a patient, already reduced by a fever of ten or twelve days' duration, by large doses of antimonial medicines, or irritating his system with a mercurial salivation. The enumeration of stimulants, tonics, diaphoretics, and aperients already made, in speaking of Typhoid

fevers, attended with subacute phrenitis, renders it unnecessary to give an extensive catalogue in this place. The great point is to stimulate and evacuate alternately, or at the same time, and every physician will make his own choice of means. There are a few, however, on which I propose to make a few remarks. They are, fresh and cold air, the cold affusion, emetics, drinks, the basis of which is alcohol, and a restorative diet.

1. Because a patient, labouring under the Typhoid stage of Autumnal fever, is in a state of exhaustion, it does not follow that he will not bear the impress of fresh and cold air. On the contrary, he requires its stimulus to the surface, both of his lungs and body; for according to the experiments of Dr. W. F. Edwards,* it may be regarded, when applied even to the latter, as one of the supporters of life. Properly admitted and regulated, it is a remedy of much efficacy. The following rules should be observed. 1. The surface of the body should not be uncovered, for this will impair its functions. 2. Particular parts should not be more exposed than the whole surface. 3. When the heat of the system is below the standard of health, fresh and cool air should still be freely introduced; but the patient must then be carefully protected by bed clothes. 4. On the other hand, when his temperature is in excess, the slightest covering will be sufficient; but in the Typhoid stage of Autumnal fever, the powers of the system are so weakened, that great reductions of heat take place under short exposures, and hence it is necessary to guard against too long an application of the agent; for coldness of the surface is highly prejudicial in this, as indeed all other diseases. So much for the *positive* advantages of free ventilation. Its *negative* benefits are not less important; for in few maladies are the cutaneous and pulmonary exhalations more vitiated, and if they be not perpetually expelled from the apartment of the patient, must greatly aggravate his disease.

* *See* De l'Influence des Agens Physiques sur la Vie. Paris, 1824.

2. The cold affusion is a potent remedy in the state of fever now under consideration. It carries off the superabundant caloric of the skin; or so distributes it as to raise the heat of particular parts, which were too cool. But its most beneficial effects result from the sudden action of the cold water, upon an extensive surface, exquisitely sensible to the contact of bodies differing from it in temperature. Strongly and favourably affecting the sensient extremeties of the cutaneous nerves, it not only contributes to restore the healthy state of the skin; but its effects, being transmitted to the brain, are then radiated upon all the organs of the body, improving the functions, and augmenting their power. A remedy which can effectuate these important objects, is entitled to great attention. Many cases are attended with a pungent heat of the surface, while there is general weakness, with insensibility and stupor. In this state of the system, active, internal, general stimulants, are invariably prejudicial; but we have an admirable resource in the affusion. Two or three buckets of water just from the well or spring, thrown suddenly over the patient, will suspend these threatening symptoms, for some hours; and by being repeated when they return, will contribute more to a favourable termination, than all the drugs of the shop. Unfortunately, popular prejudice sometimes interferes with this salutary practice; and then we should substitute for it, extensive spongings of the surface, with very cold water, continued for a few minutes only; after which, as after the affusion, the patient should be well covered in bed, to prevent his temperature sinking too low; and, if possible, to restore the suspended perspiratory function.

3. Emetics are well adapted to the treatment of this state of fever. Those who regard it as a gastro-enteritis, or a cephalitis, must condemn them; yet I am convinced, from actual experience, of their utility. They unload the stomach, and thus prepare its mucous membrane for the reception of other medicinal agents; renovate its sensibilities; and determine to the surface of the body. I have

not observed them to be followed by increased irritability of the stomach, epigastric soreness, thirst, or any of the other symptoms which could scarcely fail to arise, if gastritis existed. On the contrary, their operation in this state of fever, is generally followed by a manifest abatement of all the symptoms, and a decided increase of general strength. Tartarized antimony is not, on the whole, the best emetic which we can use in these cases. It debilitates too much, and sometimes excites a colliquative diarrhœa. If employed, it should be given in a solid form with opium; and a quantity sufficient to operate ought to be administered at once; so as to save the patient from the prostrating effects of long continued nausea. The same precautions are not necessary in administering ipecacuanha; but even its operation should be followed by an opiate and sudorifics.

4. Distilled spirits, wine, and malt liquors, are in general use in the treatment of the febrile state, now under consideration. The stimulating principle of the whole is alcohol. In the first, it is associated with nothing to vary its effects; but in the others, there is a mixture of vegetable matters, sufficient to modify its action. This appears from the fact, that spirit and water heat the system much more than wine or beer; when they are all given in such proportions, as to make the quantity of alcohol administered the same. Therefore, in cases that require great stimulation, which of course should never be continued very long, distilled spirit is preferable; but in ordinary Typhoid fevers, I am convinced that fermented liquors are better. They excite the system less, afford a certain degree of nourishment, and, consequently, impart greater strength. The whole, however, may be, and often are, so administered, as to do much mischief. Their use never can be *continued* with impunity, unless the excretions either of the bowels or skin, are maintained in a state of considerable activity. If both of them are suspended, the brain soon becomes oppressed, and all the febrile symptoms aggravated.

It is a prevalent opinion in the interior of the United States, where distilled spirits of a good quality are common, while the wines in general use are either sour or adulterated—more commonly both—that the former should always be preferred to the latter. There is less reason for this preference, than we generally suppose; for the acids with which our wines are impregnated cannot, in reality, be regarded as pernicious in fevers, seeing that we administer them as febrifuges. A similar remark might be made respecting malt liquors; most of which contain a greater proportion of acid, less alcohol, and more nutrient matter, than wine.

5. In the Typhoid stage of Autumnal fever, something of importance may be accomplished by diet. It is often a protracted stage, and has succeeded to one in which great depletion has in general been employed. The system, therefore, is in a state of inanition and collapse. The object is to restore healthy function, power, and the lost blood; and the stimulus and nourishing qualities of food, cannot fail to contribute signally to these ends. It is an error to suppose, that in such cases, food can produce no effect, nor impart any nourishment. It is a *natural* stimulant or supporter of life; and must, therefore, impart a more *natural* excitement, than medicines. It should not be taken in large quantities; and ought to be nutricious, stimulating, digestible, and not disposed to run into fermentation. Strong coffee, milk toddy, made with lime water, if diarrhœa be present, rich soups and jelleys, ham, beef steak, lamb, and poultry, rice, Irish potatoes, toast, and crackers, are among the articles best adapted to these cases.

In the latter stages of these fevers, or even after convalescence has commenced, two of the excretions are occasionally in excess, and retard the recovery of the patient. They require special attention.

1. When colliquative sweats occur, the patient must be supported with Bark and sulphuric acid; his skin should

be sponged with *hot* vinegar—and an action must, if possible, be determined upon the kidneys, by means of stimulating diuretics, of which, perhaps, the best is cold gin toddy, with nitrate of potash, or the spirit of nitrous ether; or, if the patient is costive, we should direct our efforts upon the bowels, and boldly irritate them with a mixture of equal parts of the compound power of jalap and ground mustard seed, or ginger.

2. When diarrhœa supervenes, it must be combatted with flannel to the surface of the body, frictions, and, if convenient, the warm bath; with the compound powder of chalk and opium, or chalk and quicksilver with opium, to which small portions of ipecacuanha may be added with advantage; lastly, with vegetable astringents, alternated or combined, with such things as excite cutaneous function, and correct acidity of the primæ viæ.

To the senior members of the profession, who may have found in the foregoing remarks, nothing with which they were not already acquainted, an apology is due for having presented them to the public. This they can find, perhaps, in their own recollection of the difficulties they once encountered in the treatment of the morbid state of which I have spoken. I know, indeed, of but few diseases, that are more embarrassing to young physicians; and it is in reference to them, that I have ventured to embody the results of some experience, reading, and reflection; the whole of which are submitted for correction by their own experimental inquiries.

SELECTED REVIEW.

[From the Medico-Chirurgical Review, No. 28.]

ART. III.—1. *On the use of the Chlorate of Soda, and the Chlorate of Lime.* By A. G. LABARRAQUE. Translated from the French by JAMES SCOTT, Surgeon. 8vo. pp. 36. London, 1826.

2. *An Essay on the Use of Chlorurets of Oxide of Sodium and of Lime, as powerful Disinfecting Agents, and of the Chloruret of Oxide of Sodium more especially, as a Remedy of considerable efficacy, in the treatment of Hospital Gangrene; Phagedenic, Syphilitic, and ill conditioned Ulcers; Mortification; and various other Diseases.* By THOMAS ALCOCK, Member of the Royal College of Surgeons in London; Member of the Medical and Chirurgical Society, &c. &c. 8vo. pp. 152, with a Plate. London, 1827.

IT is now some thirty or forty years since the fumes of nitre and salt, as disinfecting agents, were sold to the good people of England by Dr. Carmichael Smith, at a very handsome sum of money—the price being fixed by the same "collective wisdom" that gave a magnificent reward of five thousand pounds to Mother Steevens for some calcined egg-shells. At the time we mention, it was usual to see the wards of hospitals, the decks of ships, the floors of prisons—nay, the private chambers of the sick, ornamented with rows of pipkins exhaling the magic fumes that were supposed to annihilate those invisible beings called contagious or infectious *miasms*. True it is, that these acid fumes did render the air of the wards of hospitals and other domiciles of the sick, much less repugnant to the olfactories; and we had reason to believe that the confidence inspired by the new disinfectant among nurses and attendants, did, in some degree, check the spread of contagious diseases. But it was found, in the end, that to correct a fetid smell, and to destroy a febrific or contagious miasm, were two different processes, not equally performed by

the fumes of nitro-muriatic acid. The new disinfectant was soon exchanged for pure atmospheric air; but not before Dr. Smith had realized the motto on his crest—"FUMUM VENDERE."

The world is now grown older, if not wiser than it was, and specifics are put forth with more modest pretensions, and more in their true character than formerly. But the history of mankind, and especially of medicine, warns us to distrust the first accounts of extraordinary powers or virtues in medicinal substances—not because the experimenters wish to deceive; but because they are, themselves, liable to be deceived. "Experientia fallax."

It appears that M. Labarraque was led to the discovery of the powers of the substances under consideration, while endeavouring to destroy the infectious odour, and prevent putrefaction in the materials used for the manufacture of catgut and other strings made from the intestines of animals.

The CHLORURET of LIME is only a new name for the old oxy-muriate of lime; and the dry preparation is a *sub chloruret of hydrated lime*, and is well known in the arts of this country by the term BLEACHING POWDER. Of the preparation of this we shall say nothing, as few will take the trouble of preparing it, when it can be procured so cheap from the great manufactures. The formula for the chloruret of soda—or, as Mr. Alcock terms it, the "chloruret of oxide of sodium," we shall give from Mr. Scott's pamphlet, as the shortest.

"CHLORURET OF SODA.

Pure Carbonate of Soda, 2½* Kilogrammes.

Distilled Water, 10 Kilogrammes.

"Mix in a Bottle that will be about one quarter empty—then into a Glass Balloon Bottle, (of about Two Quarts,) with a long neck and a large mouth, put the following mixture:

Hydro-Chlorate of Soda, 576† Grammes.

Peroxide of Manganese, powdered, 448 Grammes.

"In the mouth of the Balloon Bottle, lute a large curve tube, and one also in the shape of an S; the first tube is inserted into a bottle containing a small quantity of water, a similar tube passing from this into the Bottle containing the saline solution. The lutes being dry, a mixture of 576 Grammes Sulphuric Acid, and 448 Grammes water, is to be poured into the Balloon through the curved tube S, heat is next applied and gradually regulated until the disengagement of Chlorine gas ceases.

*A Kilogramme is 2lb. 3oz. 5dr. Avoirdupois.

†A Gramme is about 15½ Grains.

"TEST.

Powdered Bengal Indigo, one part.
Concentrated Sulphuric Acid, six parts.

"Mix and add Nine Hundred and Ninety-three parts of distilled water—one part of the Chlorate of Soda, mixed with Eighteen parts of this liquid, should deprive it of colour.

"The saline solution should be of the specific gravity of 12°* by Baume's hydrometer—if the liquid be too concentrated, add the requisite quantity of water; if, on the contrary, the solution is too weak, as much of the carbonate of Soda as will bring it to the proper strength." 36.

It is from Mr. Alcock's work we shall draw principally in this article, that zealous and intelligent surgeon having not only witnessed the powers of the chlorurets in Paris, but also in his own practice, public and private, in this metropolis.

It appears that the disinfection of corpses was proposed to Government by Labarraque, by means of the Chlorurets, and the council of health adopted his suggestions. The expense of conservation of the dead bodies in the MORGUE (a receptacle for bodies found dead, &c. in Paris, till claimed) did not exceed in a whole year, the sum of 150 francs. Labarraque then made experiments upon living bodies in the hospitals of Paris, and furnished the medical officers of these establishments gratuitous supplies of the disinfectants. In 1823, he proposed plans for rendering healthy the lazarettos, and "showed the possibility of rendering the propagation of contagious or infectious diseases impossible." A favorable report was made at the end of a year—and a prize of 3000 francs was decreed to the author by the Royal Institute.

"The disinfection of dead bodies has been proved many times, after inhumations of several days, of several weeks, and of several months, and always with the same success. The corpse of Louis XVIII. was presented to the public *without any odour*, the disinfecting chloruret of M. Labarraque having been used." P. x.

Medals and honors of various kinds now began to shower down upon M. Labarraque's head, and the cross of the Legion of Honour was soon suspended on his breast. Should the Government of this country take up the subject in the same manner as that of France, Mr. Alcock has laudably offered to conduct a train

*1,039 of common standard, temperature 55, Fah.

of experiments demonstrative of the disinfectant powers of the chlorurets. We hardly expect that ministers will turn aside from their politics for the prosecution of the sciences. They certainly "manage these things better in France." *There*, the hospitals and scientific institutions are more immediately under the control and management of Government, and rewards and honours are consequently more frequently dispensed to men of merit. *Here*, there is no such system. Every thing is left to private enterprise, and such returns as the public itself may think fit to award.

Mr. Alcock has endeavored, in this little work, to collect the scattered information relating to the subject, and to add such further observations as his personal experience has afforded. For this attempt we think he deserves the approbation of every well-wisher of medical science.

M. Labarraque observes, that it is a fortunate circumstance to be able to arrest animal decomposition, and thus, as it were, to annihilate several causes of death—but it is a still more fortunate discovery, the power of arresting decomposition in the living body. "I have had the happiness to observe this *prodigy* performed by the application of the chloruret of oxide of sodium (chloruret of soda) to wounds." Sincerely do we hope that this *prodigy* will be often witnessed in this country. But we have lived long enough in the world to have little faith in prodigies—and especially in medical prodigies. We think the powers of the disinfectants, as to the arrest of decomposition in the dead body, however, as very fairly established by what took place in the Morgue. To this mournful receptacle all the bodies found in the Seine, and in Paris and its environs, are brought for inspection. "Even when bodies have been far advanced in putrefaction, the affusion of a solution of chloruret of lime in water has immediately removed the putrid odour." An apothecary at Lyons, writes that during the month of July, 1825, the thermometer was above 90°, and the corpses, a few hours after their death, spread an odour so infectious, that during the mass which was celebrated for the repose of their souls, the priests and the friends forgot—the former the resignation of their ministry, the latter their affliction—to complain and close their nostrils. There was fear of an epidemic, and some of Labarraque's solution was ordered to be thrown upon the sheet when the coffin was opened, to ascertain the presence of the corpse. The result was most satisfactory.

"The mode of employing the chloruret of lime to prevent or retard putrefaction is very simple, and may be effected at a trifling expense.

"To one part of the chloruret of lime add forty parts of water: mix them thoroughly, and pour off the clear liquid.

"With this liquid the entire surface of the body should be freely sprinkled by means of a watering-pot, or in any other convenient manner.—This sprinkling should be repeated twice or oftener, daily, according to the temperature, degree of putrefaction, &c.

"Should putrefaction be far advanced, or the period the corpse is intended to be kept be considerable, it is better to surround the body with a sheet moistened in the solution, and to renew the moistening of it frequently. By these means all putrefactive odour in the apartment may be perfectly obviated." 4.

Another important occasion on which the chlorurets may be employed, is when the body of any distinguished personage may be required to lie in state. Mr. A. informs us that the people of Greece were deprived of the pleasure of beholding the corpse of Lord Byron, in consequence of this putrefaction; while that of Louis XVIII. was approached by his subjects with safety, and without any disagreeable odour being exhaled.

Another purpose is that of enabling medical men to examine bodies that have been interred, when suspicions arise as to the cause of their death. We published the account of Orfila's examination of a body that had been buried thirty-two days, and in the hottest season of the year. When the grave was opened, the odour was insupportable; but aspersions with solution of chloruret of lime, "produced marvellous effects," for the infected odour was quickly annihilated. In this case the presence of arsenic was detected in the stomach. *See Vol. I. of this Series, p.* 289. We shall quote from Mr. Alcock's work the following directions of Labarraque respecting the management of this disinfectant on such judicial occasions as the above.

"'Before approaching a corpse in putrefaction, a tub should be procured in which may be put a load of water (24 litres, about 49 pints;) pour into this a flagon, (half a kilogramme—1lb. 1oz. 10½dr. avoirdupois,) of the chloruret of lime, and stir the mixture.

"'Dip a sheet in the water contained in the tub, and unfold it so as to be able to withdraw it with facility, and particularly so as to be enabled to extend it very quickly over the corpse.

"'To effect this, let two persons open the sheet and place it in the liquid, holding the ends upon the edges of the tub; let this be carried to the side of the body in putrefaction, and at the same instant let the wet sheet be drawn out of the tub and laid over the body.

" 'Soon afterwards the putrid odour ceases.

" 'If blood or any other fluid proceeding from the dead body have flowed upon the ground, pour upon this liquid one or two glassfuls of the chlorureted water; stir with a broom,—and the putrid odour will disappear.

" 'This operation, however, ought not to be thus performed whenever the liquids spilled on the ground may become the subject of a chemical analysis: in this case the greatest quantity possible should be carefully collected; and it is when this has been effected that the disinfection of the ground should be performed in the manner above mentioned.

" 'If the infection have spread in the neighboring places, in the corridors, stairs, &c. the infected places are to be sprinkled with one or two glasses of liquid chloruret of lime, and the fetid odour will cease.

" 'Care must be taken to moisten frequently with the liquid contained in the tub, the sheet which covers the corpse; the reproduction of the putrid odour will be thus prevented.

" 'As soon as the body has been removed, the sheet which has served for the disinfection should be washed in large quantities of water, dried and folded.' "

The disinfectant power of the chlorurets promises to be of great advantage in the prosecution of practical anatomy, to the pursuit of which so many obstacles now present themselves. We do not say that dissection wounds are dangerous in proportion to the advance of putrefaction; but there can be no doubt that the exhalations of a putrid body must be prejudicial to the student's health, and therefore it would be very desirable that such exhalations should be corrected. But, as Mr. Alcock has justly observed, there is no royal road to such an extinction of putrid effluvia, without great attention to cleanliness and ventilation. Mr. Alcock throws out some excellent hints as to the important subject of hygiene in the dissecting room, which we recommend to the attention of those who have the charge of such establishments.

In private dissections, it is often of importance to be able to preserve parts as long as possible, where time is fully occupied by professional pursuits.

"The mode," says Mr. Alcock, "by which I have preserved parts fit for dissection during weeks, and even months, sometimes in summer, has been to macerate them in warm water, taking care not to overheat the subject, and to inject into the arteries a solution of the nitrate of potash, either saturated or nearly so, at the temperature of from 120 to 130 degrees; to let this be retained a few minutes, and then to turn the stopcock so as to allow any part that might remain in the larger vessels to

flow out; then, the temperature being kept sufficiently high to prevent the chilling of the injection, to throw in gradually a small quantity of fine injection, previously heated by immersing the vessel containing it in hot water; and lastly, to throw in rather briskly the wax injection of a proper temperature, so as to fill the larger vessels and to propel the fine injection into the capillaries. When cold, the dissection may be commenced. By these means the beautiful and florid appearance of the muscles is preserved or heightened: but the salt is apt to effloresce on surfaces which are long exposed: and if the cuticle be removed the skin becomes horny, the adipose substance oily, and in short, in such a condition to render the tracing of the cutaneous nerves impracticable. These inconveniences may be obviated by conjoining with the above the use of either the chloruret of lime or of the oxide of sodium—for this purpose aspersions will seldom be required. If, when the dissection is not continued, the integuments, &c. be placed, and the parts be surrounded with cloths moistened in a solution of the chloruret, the preservation may be effected for an indefinite length of time, sufficient at least to afford opportunity for a careful and complicated dissection, even when only a very few hours of each day can be devoted to the subject."

The importance of a disinfectant, such as the chlorurets, will be easily appreciated where *pathological* investigation is to be prosecuted.

The disinfection of hospital wards, sick rooms, &c. is next considered. And here we must be allowed to express our scepticism respecting the disinfectant powers of the chlorurets, till much more precise and specific evidence is put forth than what we find in the statements of Labarraque, supported even by the talents and discernment of Mr. Alcock. The proofs adduced in favour of the nitro-muriatic acid fumes, previously to the parliamentary reward, were infinitely stronger than those here brought forward; and yet few, if any, of those who have been in scenes of infection and contagion, now place confidence in the disinfectant properties of the said gases. We were, therefore, a little surprised that Mr. A. should have written the following paragraph:

"The efficacy of acid fumigations, and still more decidedly those by chlorine, has been *sufficiently* established; the former by the sanction of a parliamentary reward." 54.

If this parliamentary reward be a sufficient testimony, Mrs. Steevens' egg-shells cannot be questioned as lithontriptics. But we apprehend that it is the experience of mankind, and not parliamentary remunerations, that must be looked to for proofs of this kind. The proofs adduced by Labarraque are too vague to be relied on—witness the very first which he sets forth.

"M. Labarraque relates experiments made during *two nights* at the Bicetre in eight wards, inhabited, and very infected. These wards, to the great satisfaction of the patients, and of the physician who attended them, have been purified, by means of sprinklings made with one bottle of the concentrated chloruret, diluted with thirty parts of water."

But, once for all, we object to the coupling of the words *purification* and *disinfection*. Bad smells may be corrected, and contagion may still remain. We have always upheld the doctrine, that *ventilation* is the best and safest disinfectant. To *remove* the infected air, is surely more effectual than to correct or cover a fetid exhalation floating in it, since we cannot tell what the contagious miasm is, or whether it really have any fetid odour or not. We shall take Mr. Alcock's own words in another place.

"From the preceding observations, those who have not devoted themselves to the study of medicine, might be led to suppose that the process of disinfection before pointed out, should be all that might be required to render salubrious the foul wards of hospitals and other places occupied by the sick; this would be an unfortunate conclusion, for the fact is far otherwise: although the pestilential effluvia diffused in such an atmosphere be capable of immediate correction, yet unless the cause be removed, the regeneration of similar effluvia is not prevented. Hence, therefore, the most rigid attention to cleanliness and appropriate ventilation is essential to the welfare of the sick; for although the chlorurets may destroy the putrid miasmata, they cannot furnish that supply of pure air, without which health cannot be sustained, nor disease be successfully treated. Many persons are in the habit of using fumigations of vinegar, of aromatic pastiles, and of diffusing perfumes to cover any bad smell which may pervade the sick chamber; these practices are however founded in error; for if due attention be observed with respect to cleanliness and ventilation, not only will the accumulation of disagreeable effluvia be prevented, but the apartments of the sick will be kept as sweet as any room in a well regulated dwelling house; there is no perfume equal to a perfectly pure atmosphere, and the best test of that purity is the total absence of any odour whatever." 65.

In these sentiments we perfectly agree. *With* cleanliness and ventilation there will be little or no danger—*without* these, we should have no confidence in the chlorurets, the fumes, or the perfumes.—Where the "pure atmosphere" cannot be put in requisition, we have no objection to the chlorurets, which may lessen or destroy fetor, inspire some mental confidence in the agents employed—and, perhaps, lessen the virulence of contagious miasms, though of this specific power we are far from having sufficient proofs.

In respect to the purification of putrid water—the disinfection of work-shops—the purification of stables—the disinfection of privies, drains, reservoirs, &c. we can say nothing from observation; but are bound to believe, from the statements of Labarraque and others, that the chlorurets are useful correctors.

There are some circumstances occasionally let out in these documents and statements, which have tended somewhat to lessen the high estimation in which we were disposed to contemplate the character of Labarraque as a "distinguished philanthropist"—the term applied to him by Mr. Alcock. It appears that the composition of the disinfectant in question, was kept a secret for a considerable time by Labarraque, and names given to it to disguise or veil its real nature. And why? Because Labarraque feared "the *islanders*" would be able to rival and *undersell* his countrymen in this manufacture!

"If this manufacture," says he, "were known in Great Britain, no doubt these islanders would soon endeavor to deprive us of a product which they would export in great quantities to Spain and Portugal, &c."

Self-love and social are said to be the same; and we suspect that the philanthropy of Labarraque, like charity, began at home. Mr. Battley may now adduce a *philanthropic* reason for concealing the composition of the liquor opii sedativus, lest the *Continentalists* should rival and *undersell* his countrymen in the manufacture. It is wonderful how few things, in this world, go by their proper names!

The following passage will make the inhabitants of London and Edinburgh too proud:

"In Paris, the general want of sewers renders the emptying of reservoirs of excrements a frequent and abominable nuisance, which is sometimes inflicted upon the inhabitants of the most respectable hotels, without the slightest attention to the disinfecting process which M. Labarraque has pointed out, so little is a man a prophet in his own country.

"An English gentleman at one of these hotels observed, on returning home at night, some old dirty carpets hung up at the bottom of the staircase, and some ill-looking fellows lounging about. He could not proceed to his apartment without passing this barrier, and inquired what it meant. The answer was, '*pour empecher le mauvais odeur:*' But as there was then no bad smell, the work not having commenced, he did not anticipate what was to follow. He went to bed, but was awoke by an intolerable and suffocating stench. He got up to open his window to admit fresh air: but far from finding relief, the tubs which contained the filth occupied the street just under the window of his apartment, which was the *entresol*, (or room between the parlour and the first floor) and the evil was so much

increased that sleep became impossible, and he really thought he should be suffocated before morning: the thorough impregnation of clothes, furniture, and every thing in the room, was the least part of the infliction; for he suffered a severe attack of bronchial inflammation, which rendered him unable to pursue his avocations for several days." 38.

It is affirmed that a train of dry chloruret of lime placed under the doors on such occasions, will destroy or neutralize these mephitic exhalations. As there is a very large manufactory of this disinfectant at Glasgow, we hope the good folks of "AULD REEKIE" will expend a couple of baubees weekly, in chloruret of lime, for the *nether* regions of their mansions. Indeed a sprinkling of Labarraque's wash would do the streets of the modern Athens no harm, now and then, on a hot summer's morning. We strongly recommend the commissioners of sewers, and the directors of gas works, in this metropolis, to employ the chloruret whenever they open drains or mend the gas-pipes in the streets. The hydrogen effluvium which now salutes the olfactories at every turn in London, is little less abominable than the "*mauvais odeur*" which gave Mr. Alcock the bronchial inflammation in Paris.

An interesting account is given, from Labarraque, of the perilous enterprise which was undertaken, under the aid of the disinfectants, to cleanse an abominable drain, called the EGOUT AMELOT, in Paris. Several workmen had been asphyxied in former attempts—and the sewer had been "infected and impracticable for more than forty years." It was completely cleansed under the guidance of Labarraque himself, without any sinister accident.

After alluding to the observations of M. Lisfranc and Labarraque, respecting the power of the chlorurets over the poison of *small pox and measles*, Mr. Alcock indulges in the following philanthropic anticipations:

"The beneficial results already obtained in arresting the ravages of infectious diseases, afford a well grounded presumption that the chlorurets may also be effectual in preventing the ravages of the plague, yellow fever, and other pestilential disorders; and perhaps the period is not far distant when these dreadful scourges will no longer be dreaded, and that the first benefit from the use of such powerful disinfectants, namely, that of allowing patients laboring under these pestilential conditions to be approached with as much security and confidence as when afflicted with the ordinary diseases of our climate, which under certain unfavorable circumstances are known to be communicable from one individual to another, may subsequently lead to improved modes of treatment, which shall in a great measure divest even the plague itself of its terrors." 59.

We shall say nothing to check such fond hopes; but proceed at once to the application of the chlorurets as remedial means in certain *diseases* to which the living body is subject. We understand that Mr. Alcock has put these means to the test of experience, and, therefore, his observations are the more valuable.

Mr. Alcock set out with the following assertion—namely, that the chlorurets have not only the power of "destroying the most putrid effluvia arising from animal substances," but also, "the property, when applied to the substances giving off these effluvia, of arresting or destroying the progress of putrefaction." This *progress* of putrefaction, however, refers to the *dead* parts; but a little further on, Mr. A. informs us that the application of the chlorurets generally "promotes the more speedy separation of the dead parts from the living, than can be obtained by ordinary means."

"It very often is capable of changing the nature of malignant, corroding, and destructive sores, into the condition of simple ulcers: in many ulcers not malignant, it is capable of greatly hastening the cure. In short, though not an infallible remedy, it is capable, under the guidance of medical and surgical skill, sound judgment and experience, of alleviating, and often of totally removing some of the most distressing and loathsome diseases to which the human body is liable; diseases which too often, uncontrolled by remedies previously in use, have hurried numerous victims to untimely graves." 68.

These sanguine hopes, are, however, considerably damped in the same page, by several observations tending to show that it will be necessary for the surgeon to bring to the aid of his patient all the resources of his art, and abstract from him every thing that may prove hurtful. Under such regulations, directed by such a man as Mr Alcock, we have no doubt that the chlorurets would be as successful as could be well expected; but where every other auxiliary was put in requisition, it would not be very easy to say exactly how much was due to the chlorurets.

The subject of hospital gangrene is prefaced by an extract of some pages from John Bell's principles of surgery, exhibiting a "vivid representation of verminous ulcer and hospital gangrene." Extracts are then given from the reports of Labarraque, and also the communications of several continental surgeons in foreign Journals, showing the good effects of the chloruret of soda in gangrenous and other ill-conditioned ulcers. Mr. Cloquet, in the Hospital St. Louis, has

caused the mortified limb, in several of these extremely severe diseases, to be bathed in the chloruret, diluted with ten or fifteen parts of water, and has given internally from twenty-five to thirty drops of the chloruret in a pint of ptisan. Testimonies are also adduced from Margolin, Segalas, and many other surgeons, in favour of the remedy in question. At page 84, we find a case of sloughing of the scrotum from extravasation of urine, after bursting of the urethra, detailed from the practice of the Westminster Hospital. The man died.—"The chloruret was not used." We are entirely at a loss even to guess at the reason which induced Mr. A. to introduce this case, unless it was to reprehend the neglect of using the chloruret. But men should hardly be censured for exercising their own judgment as to the propriety or impropriety of using a new remedy in a dangerous case, until the utility of the remedy be fully ascertained. This is certainly not yet the case in England.

Mr. A. informs us that Mr. Ollier, surgeon to the Western Dispensary, used the chloruret of soda with great advantage, in a case of gangrene of the cheek, in a boy. The dead parts had separated, leaving a great part of the lower jaw perfectly denuded. "There was a copious and offensive discharge, which must have tainted the air respired by the patient. A solution of the chloruret, in the proportion of one part to six of water, was applied to the ulcerated surfaces, and the dressings moistened with the same solution, from time to time: the putrid odour immediately disappeared." Mr. A. has himself used the chloruret of soda in cases of phadedenic ulcerations of the genitals, "with decided advantage."

In chronic and ill-conditioned ulcers of the legs, Mr. A. avers that the chlorurets are very beneficial, especially when the constitutional disposition on which these ulcers so frequently depend, is carefully attended to.

"The author has used both the chloruret of lime and that of soda, as well in the treatment of common ulcers as in those of long standing, and has found the healing process to advance with greater certainty than under the use of the usual applications. When there is much inflammation the use of the chlorurets produces too much irritation to be proper. Sometimes the solution of the chloruret has been combined with the use of cataplasms: but more generally with common dressings, varying the support afforded to the limb according to circumstances." 96.

And, again:—

"The strength of the application should be regulated so as to avoid giving any considerable pain. From three to six proportions of distilled water to one of the concentrated solution, will suffice for ordinary use; but sometimes its immediate application undiluted when the surface is very foul, may be made not only without injury, but with decided benefit. I have witnessed on several occasions the change from a foul grey surface to a clean florid appearance in twenty-four hours, and the relief to the patient's feelings correspond with the alteration in the appearance; but it is not any sudden improvement, which can supersede the necessity of strict and persevering attention: I have known patients inflict upon themselves by a single awkward application of the roller a degree of injury, which has not been recovered from in the course of a month." 97.

In some diseases of the bladder and urinary organs, the urinary secretion acquires a peculiarly offensive odour. This may be prevented, it is said, by putting a few drops of the chloruret of soda in solution, into the chamber pot. In ulcerations of the uterus, it is of great consequence to correct the fetor if possible. For this purpose the chloruret of soda should be diluted with twelve or fifteen parts of water, or even more, and then used as an injection. In this way the fetid discharge from polopus uteri may be corrected.

"Dr. Elliotson, physician to St. Thomas's Hospital, has used the chloruret in a case of diseased uterus which had previously been considered to be almost hopeless: the patient is now in a fair way of recovery." 107.

Burns and scalds are said to be treated with great success in La Pitie, by means of the chlorurets.

"*Cancer* has been disinfected, and experiments are continued on this frightful malady, as also on corroding tetters. (Dartres.) Cases of the cure of scald-head have equally been communicated to the Royal Academy of Medicine.*

"*Herpes.* Dr. *Biett*, Physician to the Hospital St. Louis, has made numerous applications of the chloruret of oxide of sodium to herpetic complaints.

"*M. Sanson*, Surgeon in ordinary at the Hotel Dieu, has disinfected *ulcerations of the mouth*, with caries of the bones of the vault of the palate, and has suspended during some time, the ravages of this frightful malady.

"*Dr. Lagneau* has made use of the chloruret in injections for the *softening of the gums, with ulcerations*, exhaling a great degree of fetor. The condition of the patient has been ameliorated, and after each injection, the odour has been destroyed.

*Case of a cure of *tinea favosa*, communicated by the Royal Academy of Medicine, by *Dr. Roche*. This affection had resisted the different usual modes of treatment.

"*M. Reynard*, dentist, has wished to employ the chloruret of oxide of sodium, to arrest the caries of the teeth, and to destroy the odour of the mouth; but he has observed, that this remedy disagreeably excites the salivary glands; and on that account, he thinks it cannot be employed for the toilet of the mouth.

"*Dr. Chantourelle* has long since employed the chloruret of oxide of sodium, diluted with ten parts of water, in two cases of putrid sore throat, (*angina gangrenosa*,) and all fetid odour, so dangerous to the assistants and to the physician, disappeared: these two cases have been communicated to the Society of Medicine of Paris. Very recently also, he has derived great advantage from the use of chloruret taken into the stomach, in the dose of twenty-five drops in a glass of water, to destroy the disengagement of sulphureous gas, which very greatly troubled a person poisoned by the hydrosulphuret of potash, already expelled by vomiting. His memoir, read at the Royal Academy of Medicine, has given rise to a learned report, which is noticed under the head ASPHYXIA.

"In *Ptyalism* and *ulcers of the mouth*, the author has employed the solution of the chloruret of oxide of sodium, with decided benefit; also in *simple and syphilitic ulcers of the throat;* in the more severe affections of these parts in that form of angia, commonly called putrid sore throat, the relief has been almost immediate.

"In the affections of the throat, in *small pox*, in *measles*, and in *scarlatina*, the use of the chloruret will prove a most valuable auxiliary, although it would not be safe to trust to a local application only to the exclusion of other means, essential to the welfare of the patient." 111.

Here we must close our analysis of Mr. Alcock's work, which will doubtless obtain an extensive circulation, on account of the simplicity of the remedial agents, and the number and importance of the diseases for which they may be employed. Enough, we think, has been adduced, to render it *certain* that the chlorurets of lime and soda possess strong powers of destroying *fetor* of various disagreeable or noxious substances—but, how far they are capable of annihilating the *contagious* or *infectious* miasms of certain exhalations from animal or vegetable matters, this deponent saith not.

To Mr. Alcock and Mr. Scott, the English profession is under obligations, for laying before them the various documents respecting the said chlorurets; and we have no doubt that their labors will be rewarded by the approbation of their brethren.

ORIGINAL REVIEW.

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Art. IV.—*Principles of Dental Surgery, &c. &c.* By Leonard Kœcker, M. D. &c.

Concluded from No. VI.

The second part of Dr. K's work is practical, and much of it relates to the manipulations of the art. Professional Dentists will of course study the book itself, and we shall, therefore, limit our transcriptions to such matters as cannot fail to interest our readers generally. The first chapter, of nearly fifty pages, is devoted exclusively to the subject of Caries.

"Caries is the most afflicting and destructive disease to which the teeth are liable; it not unfrequently spreads its ravages through the whole set, until every tooth is destroyed.

"I believe I may justly assert that this malady has hitherto not been properly understood, nor satisfactorily described by any surgical writer.

"One great cause of the confusion and contradiction pre-eminently discoverable in every essay, treating either theoretically or practically on this fatal malady of the teeth, is the surprising manner in which the disease itself has been confounded with its effects, viz. putrefaction; or the living tooth under the influence of the disease, with the dead tooth which has been destroyed by it: an error, by which authors have been led away from the subject, in their inquiries and observations, and have been induced to adopt and advance theories and practices, false and unnatural in their facts and principles, as well as dangerous and destructive in their application.

"Caries of the teeth must be considered as similar to gangrene of other parts of the system. And where we speak of caries as a disease, we mean that diseased action in the bony structure of the living tooth, produced by the chemical irritation of its rotten or dead parts. Hence it is indispensable that we should make a due distinction between caries considered as a disease in the tooth, and the effect of that disease; viz. mortification and putrefaction of its whole structure.

"Although the term caries is most commonly applied to dead, as well as to diseased teeth, this denomination, when applied to the former, is erroneous; for a carious tooth, properly so called, is a living tooth possessed of that vital action by which the morbid irritation of the dead substance is counteracted. By this counteraction more or less inflamma-

tion is produced in the bony structure of the tooth; whereas, a tooth, when deprived of this vital action, is no longer carious, but dead.

"This distinction is of the greatest importance, not only inasmuch as the effects of diseased and dead teeth are very different, but also as they almost invariably require an opposite surgical consideration and treatment." pp. 207—8.

Our author then proceeds to animadvert on Mr. John Hunter's confounding caries with putrefaction; in the course of which we find the following observations:

"Caries, in fact, is that state of the tooth in which mortification has taken place in one part, and inflammation in the part contiguous to it, the former originally produced by the latter, and the latter kept up by continual contact with the former.

"This rapid process of diseased action must consequently more quickly destroy the living tooth, than the chemical agency, by which dead matter acts upon a bone of so hard and dense a structure as a human tooth; and the less, therefore, it is enabled by its very dense construction to arrest or suspend diseased action when living, it is naturally the more adapted to bear the most powerful chemical and mechanical influences, such as putrefaction, mortification, &c. in its dead state.

"This may frequently be observed in dead roots, which remain after the crumbling away of their crowns; the roots being sometimes particularly protected by the surrounding parts." p. 211.

Caries may be divided into simple and complicated. It is simple, so long as it affects exclusively the bony structure; complicated, when it is accompanied by disease of the lining membrane. Concerning simple caries we extract the following paragraphs:

"Caries in my opinion is in a certain sense a contagious disease; for this disease in one tooth will generally communicate itself to the next, not only by its being in immediate contact with the surface of the adjoining tooth, but also, probably, indirectly by its chemical influence.

"The combined action of many carious teeth invariably communicates disease to other teeth of the set, though perfectly exempt, previously, from all apparent tendency to caries.

"This fact is constantly proved to me by experience, and may be made evident to the least attentive observer.

"Though this disease attacks all the teeth without distinction, yet it may be considered as a general rule, accordant with my experience, that the molares or grinding teeth more frequently suffer from this malady than the incisors and cuspidati; and that the bicuspides or small grind-

ers, incisors and cuspidati of the upper, are, generally, much more subject to caries than the same teeth of the under jaw.

"The large grinders are affected with this disease most commonly on their grinding surfaces; whereas the small grinders and front teeth generally suffer from it on those sides which are in contact with the adjoining teeth.

"It is not an uncommon occurrence to find a single tooth affected with caries in several distinct places, sometimes amounting to five or seven, of more or less extent.

"This malady originates either in the enamel or external surface, or in the internal parts of the bony structure of the tooth. It may, therefore, be properly divided into two kinds, viz. external and internal caries.

"External caries differs considerably from internal caries, particularly in its origin and remote causes. Each will, therefore, require a separate consideration.

"Although external caries may be slower in its progress than the other, it is not less certain of producing ultimate destruction, and I am inclined to consider it of more frequent occurrence than internal caries, and consequently a source of at least as serious apprehension.

"All the teeth are quite as liable to this variety of caries, as they are to the other; but this not only extends its morbid action, like the former, to the crown, but also to the neck and roots of the teeth, whenever exposed to the ordinary causes of the disease.

"Although all parts of the crown and of the body of the teeth are liable to this disease, yet it is most frequently observed to commence at those sides which are in contact with the neighboring teeth.

"It never affects the extreme ends of the roots, but is most frequently seen in them near the neck; and it generally attacks both the roots and the neck on those sides of the tooth which form the semicircle or arch of the jaw.

"When it makes its first appearance on the surface of any part of the crown of the tooth which is covered with enamel, it generally presents itself as a very small speck; though sometimes as a large, round, or irregular spot.

"After the removal of this irregular, broad, or round spot of caries with the file, it will be generally observed to have extended superficially only; and to have penetrated in this manner through a part or the whole of the enamel.

"It will next exhibit on the surface of the bony structure a small spot, similar to that sometimes observed on the enamel; whence, in either case, it almost invariably proceeds in a direct line towards the cavity of the tooth.

"This spot appears in some cases not larger than a point, although it already may have penetrated a third, or even half of the bony structure of the affected side of the tooth.

"On such parts as are not covered with enamel, the neck and roots of the tooth for instance, the spot generally appears irregular, and extending across a considerable portion of the surface of the neck, having the appearance of a notch of an oblong form.

"The color of carious spots may be white, grey, yellow, brown, or black; the specific appearance being presumed to depend upon the chemical influence of the external fluids on the diseased parts.

"Sometimes the disease of the crown penetrates very nearly to the lining membrane of the tooth, before the mortified bony structure becomes sufficiently soft to allow the escape of the diseased matter, so as to form a cavity: but this is more rarely the case in the roots or neck, which are generally of a softer and more easily corroded nature.

"This state greatly depends upon the different proportion of the animal and earthy constituents of the bony structure of the tooth; and also on the chemical state of the saliva, which is naturally much influenced by the state of the other teeth and parts of the mouth, as well as by the general state of health of the individual.

"As the carious matter increases in its corrosive qualities, and the affected part becomes softer, the disease causes a cavity in the crown of the tooth similar to that produced by internal caries; excepting that the cavity produced by the latter is generally large and round, whilst that produced by superficial caries is frequently narrow like a tube.

"When seated in the necks and roots of the teeth, caries rarely forms such a cavity; but extends itself on the surface, and becomes broad and more irregular in its progress; and sometimes in the neck of the tooth it has the appearance of undermining the enamel towards the crown, so as to form an oval or oblong cavity ending in a point at each extremity, such as might be cut into it artificially by a triangular file.

"After the disease has penetrated through the enamel, its progress and effects, as well as symptoms, are precisely like those of deep seated caries.

"It is subject to all the same general and local influences, with this difference, however, that such teeth as are affected by external caries being of a stronger original construction than such as are affected with deep-seated caries, they are acted upon more slowly than the latter; consequently, if we suppose that the diseased action of deep seated caries requires from one to five years to penetrate through the bony structure of the tooth and to destroy the life of its lining membrane, superficial caries may require from four to ten years: and the chemical destruction of a tooth, the death of which has been effected by the latter disease, will occupy a much longer time than that of the former.

"This kind of caries sometimes advances so slowly in an originally strong tooth and extends itself so little on the surface, that its progress may appear to be altogether arrested.

"Entire suspension of the malady, however, is impossible, as long as dead matter is allowed to remain in contact with the living structure; although it may proceed so very slowly as to make its progress imperceptible

ble for some time, it will, however, in the event, never fail to become evident on the accession of symptomatic inflammation, or of any other sufficient cause of irritation.

"Internal caries generally affects the parts between the enamel and lining membrane, but somewhat nearer to the former part of the tooth, on the surface of which it is first observed from its giving the tooth a bluish hue.

"It becomes more evident by presenting the appearance of a blue mark, and afterwards a brown spot, till it shall have penetrated through the whole external bony structure and enamel, and become a cavity, either on the grinding, or on one of the lateral surfaces.

"The orifice of this cavity is at first very narrow; but it increases in time externally, in the same proportion as the caries extends itself in the cavity.

"This disease, as far as my experience has enabled me to judge, always attacks the crown of the tooth, and never the neck or the root.

"As the disease is more actively resisted by the greater vascularity, and consequent activity of the internal bony structure than by the harder and less vital external parts of the tooth, it never proceeds so far towards the cavity containing the nerve, as to render this membrane altogether unprotected by the bony structure, before it has penetrated through the external osseous parts, including the enamel, and has thus formed a natural outlet for the bony abscess.

"Putrefaction acting upon a dead tooth, destroys the bone by immediate chemical action, and produces a direct change from a state of mortification to that of putrefaction. It, therefore, naturally finds the greatest resistance in the hardest and least vascular parts of the tooth.

"But putrefaction in the form of caries, of a living tooth, destroys the bony parts, with which it is placed in immediate contact, in an indirect manner, producing by its chemical irritation, in the first place, inflammation, and afterwards mortification. It is in this instance, therefore, much more actively resisted in its destructive influence by the vascular than by the hard parts of the tooth. Consequently, as the bony structure of the tooth is more vascular the nearer it is to the lining membrane, and harder and more compact the nearer it is to the enamel, and, therefore, endued, in proportion to its vascularity, with a greater or less power of resisting inflammation; the diseased action of caries will proceed more rapidly towards the exterior, than towards the interior of a tooth, and invariably produce an outlet at some part of its surface, before it can come in contact with its lining membrane.

"Although the enamel of the teeth, from its not being organized, is not subject to the immediate influence of inflammation; and although, from its crystalline nature, it is also most admirably calculated to resist putrefaction and other chemical influences; it is, nevertheless, from its peculiar structure, easily destroyed by mechanical causes, when once deprived of the support of its bony structure: consequently, where caries has destroyed

that support, it is soon removed by mastication, and an external orifice to the carious cavity is thus produced.

"When the disease has thus made itself an outlet through the bony structure and enamel, its progress towards the lining membrane is at this time somewhat retarded by the free evaporation of the putrid vapour, and the partial discharge and separation of the dead matter: it is, however, soon afterwards exasperated by other exciting causes, viz. the additional external chemical and mechanical influences.

"The caries now proceeds towards the cavity, more or less speedily according to the constitutional strength of the tooth, and violence of the general and local causes; until, at last, the disease penetrates through the whole bony structure, and produces considerable irritation upon the lining membrane, so as to involve that important and exquisitely sensible structure in idiopathic inflammation. At this period the disease may properly be called complicated caries.

"The degree of rapidity of the destructive progress of deep seated caries, depends upon the constitutional strength of the affected tooth, and on the degree of violence of the general and local exciting causes, which act simultaneously in aggravating diseases.

"Internal caries, however, proceed much more rapidly than external; and it may be said to require, generally, from one to five years from the commencement of its corroding process to penetrate through the whole bony structure, and from three to twenty-four months afterwards before the destruction of the vitality of the lining membrane of the tooth is totally effected: putrefaction and absorption, however, may still require from seven to fifteen years to complete the entire destruction and removal of the dead parts.

"Simple caries, in each of its forms, differs in its effect on the temporary teeth, from that on the permanent set, only in proportion to their less dense and less durable construction, and requires no separate consideration, except in the surgical treatment." pp. 217—27.

The treatment of caries requires a knowledge of the operative part of dental surgery, which can only be acquired by practice. In a country, however, where there are but few skilful dentists, and many itinerant pretenders, every physician should be acquainted with the resources of that profession, so as to protect his patients from imposition, and, even, in many cases, to officiate himself; a task which he will find of easier execution than he might at first suppose; and which he should never be above performing.—The following are our Author's opinions as to what should

be done for the cure of Simple Caries, both external and internal:

"The only remedy of caries is, first, the entire removal of all general and local exciting causes, and afterwards the removal of the proximate cause, by the complete extirpation of the mortified or inflamed parts of the bony structure of such teeth, by surgical operations properly adapted to the several stages of the disease.

"When superficial caries has not penetrated more than one third of the bony structure, the only judicious treatment will be to cut away the dead and diseased part by means of the file and chisel, or any other suitable cutting instruments; so as to produce a sound and even surface.

"When it has penetrated more than one third of the bony structure of the diseased side of the tooth, yet has not exposed, irritated, or inflamed the nerve of the tooth, the dead and inflamed parts of the bony structure are to be removed by extirpation, and the defective parts restored by stopping the cavity with gold.

"Deep seated caries can only be cured by the latter operation; and the filing alone is never to be attempted for the removal of this species of caries, as the disease, instead of being removed, will be increased by the irritation; indeed, a removal of the caries cannot be accomplished by this operation without exposing the lining membrane to too great indirect action of all the external irritating causes to which the teeth are liable: inasmuch as an imperfect removal of the carious matter would leave the tooth not only under the same morbid influences to which it had been before exposed, but would deprive it of some of its protecting constituents, and increase its debility by so irritating an operation: the operation of filing or cutting, therefore, performed in either way, augments the disease, and hastens its destructive progress towards the nerve of the tooth." pp. 234—5.

The nature and progress of Complicated Caries may be understood from the following extract:

"When either external or internal caries has penetrated the bony structure as far as the natural cavity of the tooth, the lining membrane becomes inflamed and diseased.

"In this state the disease may be properly called complicated caries, as the tooth is affected not only by the caries of the bony structure, but also by the inflammation of the lining membrane.

"Instead of being resisted in its progress by the healthy action of this membrane, the caries is now aggravated by its diseased state; and this caries by its greater extent, becomes a greater exciting cause of inflammation in the nerve.

"The tooth, being thus subjected to the influence of these two distinct diseases, which are rapidly advancing to their final crisis, viz. suppuration of the internal membrane, now soon loses its vitality.

"For a just understanding and a judicious treatment of complicated caries, this disease requires to be minutely observed during its progress in every stage, and its different causes and effects, as well as symptoms and appearances very perfectly understood.

"In this state the disease differs somewhat in appearance from simple caries; the tooth so affected, has generally an opaque appearance all over the surface of the enamel. This, however, is not easily distinguished, except by the very experienced dentist.

"When the disease in its first stage has penetrated into the interior, and destroyed the vitality of the bony structure, the osseous parts, although dead, retain their hard and dry state for a long time.

"Although the lining membrane is then slightly irritated by the contagion of these dead parts, yet it is at the same time protected by them from several irritating causes: and although some increased action may be produced in this membrane, yet it remains sometimes apparently free from disease for a long period; and may be considered as only in a state of morbid predisposition.

"In the second stage, when the disease has produced a greater extension of the carious cavity, and, consequently, the admission of a greater quantity of corroding matter, the dead bony parts in the neighborhood of the nerve gradually become softer, and this membrane is more irritated, and rendered more liable to inflammation from the application of any chemical, mechanical, or other cause.

"Still, in this state the lining membrane may frequently recover from such inflammation, and resist the local irritation arising from the contact of the dead bony matter, exposure to the saliva, or atmospheric changes for a considerable time, if the disease is not aggravated by causes of extraordinary violence.

"But when the disease has reached its third stage by the great violence and long continuance of the influence of the general and local causes, and the repeated return of the inflammation and suppuration of the nerve, the disease is fast approaching its fatal termination, namely, the total destruction of the lining membrane and consequent loss of vitality of the tooth itself; the dead bony structure of which is then left to be destroyed, either by chemical solution, putrefaction, or absorption.

"The rapidity, therefore, of the transition from one stage to another, in complicated caries, depends greatly on the degree of violence of its causes, and its progress is not always so rapid as is generally supposed, for a period from three to twenty four months is required by it, to destroy the vitality of the lining membrane and bony structure of the tooth, although this progress is much more rapid in the temporary, than in the permanent teeth, and may sometimes be greatly accelerated by accidental or artificial causes: such as, falls, blows, acids, caustics, the actual cautery, and surgical operations; all of which might be considered as likely to be no less violent in their future morbid effects, than they are rapid in destroying the vitality of the tooth." pp. 236—39.

Every body knows, and most persons have felt, that Tooth-ache is one of the consequences of caries. The *atrociousness* of this pain, will justify us to all who have felt it, for giving, *in extenso*, our enlightened Author's views of its causes and character. They will be found in the following extract:

"Tooth-ache, or that painful symptom of acute inflammation in the lining membrane of the tooth, which is so happily denominated by the French, "une rage de dens," is according to my observation, the result of a change in the affected parts from chronic to acute inflammation, occasioned by internal or external causes altogether foreign to the local disease.

"It is invariably produced by some violent irritation acting upon the diseased nerve, and not the immediate effect of the disease itself. It may, therefore, be generally palliated or relieved by a removal of the causes, or the restoration of the parts to their chronic state by the assistance of either art or nature.

"Hence the tooth ache is very rarely either constant or of very long duration, and is not unfrequently absent altogether during the whole progress of the disease of the lining membrane in complicated caries.

"Hence, also, from the great nervous sympathy existing between the teeth and gums and the whole nervous system, inflammation in one tooth may produce various derangements in the others, and remote parts also, whether accompanied with tooth-ache or not.

"These affections, therefore, must not be mistaken for primary diseases; they are always symptomatic; and at the moment that the violent irritation of the primary disease changes from an acute to a chronic state, or is altogether removed, the symptomatic affection will also change, or be cured.

"It is a fact, liable to no exceptions whatever, that although caries in the living tooth, whether simple or complicated, may frequently be a considerable exciting cause of diseases in other teeth and other parts of the mouth or the system generally, frequently accompanied by very painful, and alarming symptoms; yet these affections are always symptomatic and temporary; and although by its chemical influence upon the other teeth, it may be an original cause of external caries, it will never produce any actual idiopathic disease of the slightest degree in any of the parts connected with the teeth; such as gumboils, or other more serious affections of the periosteum, alveoli or maxillary bones.

"This mistake of considering caries, before it has destroyed the vitality of the affected tooth, as the proximate cause of idiopathic disease of the gums, &c. has led to great errors in the treatment of such disease; and has been the reason that the most evident causes of diseases, dangerous and

fatal to the teeth and general health, have frequently remained undetected for ever.

"In every idiopathic disease of any of the above mentioned parts, when occasioned by maladies of the teeth, the principal and most powerful causes are always dead roots or teeth, and sometimes also such teeth as are deformed, irregularly placed, or very loose, which may occasion morbid action from influences altogether different from those of caries.

"In cases of the above kind, several teeth may be found to be affected with caries in its different stages, and erroneously extracted as the imputed cause of the symptomatic pain of the gums or teeth; whereas, the real causes of the disease, such as stumps or dead and irregular teeth from not being painful, are permitted to continue their morbid irritation.

"The real exciting causes of the pain not being removed, the relief is but temporary; and those teeth, affected even with simple caries only, are so much irritated as to become as painful as those extracted, and they not unfrequently share the same fate.

"Thus the actual disease, instead of being counteracted, is greatly augmented; whereas, by a judicious extraction of all the dead roots and teeth, and of such as are affected with complicated caries, deformity, or with any other disorder of their contiguous parts, in such a degree as to render their preservation either impossible or inexpedient, followed up by proper surgical treatment, all the remaining teeth and the whole mouth might be restored to perfect health." pp. 245—8.

Among the curiosities of medical literature, we occasionally meet with a chapter on the benefits of disease.—We know of but one advantage, that has or is likely to result from the Tooth-ache. It generally leads to extraction of the decayed teeth, and thus prevents the morbid effects which their retention in the mouth seldom fails to produce. When teeth decay without pain, nothing is more common than to suffer them to remain *in situ*, and we occasionally meet with the mouths of individuals, whose teeth present every conceivable variety of dilapidation. The presence of diseased, expiring and dead *stumps* and *roots*, never fails, in the end, to do great mischief; and, as both physicians and patients are, too often, either ignorant or neglectful relative to them, we shall present the striking picture of their bad effects which our Author has drawn:

"During the slow progress of nature to rid itself of the dead parts, so much retarded by the peculiarity of their natural structure, they act as a powerful exciting cause of all the existing diseases of the teeth and of

other parts, and they also form the chief original cause of caries, both external and internal, in all the remaining teeth not yet affected.

"It consequently follows, that the number of diseased teeth will increase; and it often happens that before nature succeeds in removing the roots and other decayed parts first affected, every one of the remaining teeth is either destroyed or much affected by caries, or other diseases, originally occasioned by these dead teeth.

"I have often seen a mouth containing none but either dead or diseased teeth, and affected with many diseases of the surrounding parts; the miserable state of which had, in all probability, been occasioned by disease of only one or two teeth in the first instance.

"Sometimes these diseases of the mouth with their morbid action and the irritation of the dead and diseased teeth, proceed regularly and slowly, if art does not interfere, until every tooth is removed, and the individual then recovers his usual health, but generally not before a late period of life, and always with considerable loss of the other parts locally affected, and also of constitutional strength.

"In other instances, if this violent process of nature should, in addition to the difficulties already rising from the natural structure of the teeth, be counteracted, and should the inflammation be aggravated by other local or general obstructions, as, for instance, great irregularities of the dead roots, by which they are mechanically held in their sockets in an unnatural manner, or for an unusual length of time; irregularity of the sockets, or malformation of the maxillary bones, by which their gradual corrosion and absorption are powerfully prevented; and diseases or defects of any of the neighboring parts, as of other bones of the head, or of the glands, or considerable derangement of the general health, which particularly predispose the parts more or less connected with the teeth; as also, improper operations, and injudiciously inserted artificial teeth; such dead roots and teeth may often produce the most dangerous and distressing primary diseases of the mouth, viz. inflammation and suppuration, gumboils, fistulous abscesses, scorbutic excrescences, tumours of the gums, inflammation or suppuration in the periosteum, inflammation and mortification of the alveoli and maxillary bones, and diseases of the maxillary antrum.

"At such a period of the complicated state of the malady, when the dead roots and teeth have produced any of these local diseases, either in the teeth or in their relative parts, the secondary affections, which are frequently caused by these diseases in other parts and the system generally, are naturally much more violent: because they are then the effects of two different kinds of causes of a much greater extent than before, viz the immediate nervous irritation produced by the increased number of dead roots, and the local diseases produced by them in the other parts of the mouth.

"When these idiopathic local diseases have once arrived at this extent, if art should not properly interfere, they may, not unfrequently, be followed by a fatal termination, either by producing such defective general health as gradually wears out the consitution; or by predisposing to other diseases in such a manner, that the first morbid cause uniting with the previous local diseases, may totally exhaust health, and destroy life.

"At other times the local diseases of the mouth may become malignant or even cancerous, and occasion by a slow destructive process, the loss of extensive and indispensable parts, and at length become fatal in a most painful and distressing manner." pp. 259—262.

"The only way to prevent all the pernicious and dangerous effects arising from dead teeth is, either the timely interposition of art to restore their health, or the removal of every tooth whose health cannot be restored and permanently preserved; and the only method of cure for all the idiopathic and symptomatic maladies, whether general or local, occasioned by dead roots and teeth, is their immediate extraction, they being always the principal and proximate exciting causes of the disease." p. 267.

The third chapter of the second part of the work before us, treats of the Devastation or Absorption of the gums and alveoli of the teeth. Of this deplorable malady, we have seen so many cases, as to be convinced, that it is among those diseases of the teeth, which in the United States are most frequent. We shall transcribe such portions of the chapter as will convey a just idea of the complaint.

"This malady has its beginning, generally, in an inflammation and suppuration of the gums, which gradually extend to the periosteum, or the alveolar processes of the teeth; or it begins by an inflammation of these parts, which is afterwards communicated to the gums: it very rarely originates in the alveoli themselves.

"The inflammation and suppuration are seldom violent, and the absorption seldom rapid: in most instances it is so slow in its progress as to be scarcely perceptible, and the suppuration destroys the gums in a very gradual manner, being attended by the absorption of the alveoli and their periosteum; until the teeth, losing their support, become loose, and, at successive intervals, drop out.

"The disease rarely attacks all the alveolar processes at once, but generally begins at some one part of the mouth; I have seen it commence at the incisors, though more frequently it first invades the molares.

"The crowns, necks, and more especially the exposed parts of the roots, are frequently covered with a greenish glutinous substance, and with adhering tartar; the spaces between the teeth are filled up with tartar of a dark brown or greenish colour; but, sometimes, they are of the usual appearance.

"In other instances I have seen them so clean as to deceive a superficial observer; but a close examination has never failed to show some tartar, adhering to the roots, and pressing on the alveolar processes, hidden under the edges of the gums, and in the spaces between the teeth.

"This deceptive appearance of cleanliness, is generally the effect of improper or superficial dental operations, as scaling and cleaning the teeth, by which the tartar is but partially removed, and some permitted to remain in those very places where it is the least observed and detected, but where it causes the greatest mischief.

"The gums are, for the most part, a little swelled and inflamed, and attended by a thin pus-like discharge from between them, the roots of the tooth yielding a very offensive smell. Thus these parts sometimes exhibit a tolerably healthy appearance; though never, as far as my experience has gone, have they been perfectly free from inflammation, as Hunter and Fox have stated; although I will not deny that this appearance may often deceive those who are not habitually familiar with the very minute local symptoms of the chronic disease of those parts.

"Persons of robust constitutions are much more liable to this affection of the gums, than those of delicate habits; and it shows itself in its worst forms oftener after the age of thirty, than at an earlier period. The teeth of such persons are generally perfectly sound, or very little affected with caries, though I have occasionally met with exceptions to this observation.

"After the age of forty or fifty, it commonly occurs in a chronic state in individuals of robust health, who have not taken proper care of their teeth; in most instances advanced age is unjustly considered to be the cause of the disease, for the malady might generally be prevented, and the teeth preserved during life, by a proper care and a judicious dental treatment.

"The lower classes are particularly subject to this affection; and not even those country people who enjoy uninterrupted good health, and the influence of the most salubrious atmosphere, and who have originally the most beautiful and healthy teeth, are altogether free from its attacks. In these persons, although possessing robust health when young, in consequence of an entire disregard of cleanliness, and a greater predisposition to the production of tartar from various general causes, at a late period of life, a great quantity of tartar is accumulated, and the teeth, though entirely free from caries, are frequently lost one after another, by this destructive malady of their gums and contiguous parts.

"This disease seems to be confined to no particular climate, and is more or less prevalent in every part of the world: I have observed the inhabitants of the most opposite countries, the Russians, the Germans, the French, the Italians, the Spaniards, the Portuguese, the English, the Africans, the East and the West Indians, and the inhabitants of the United States, to be all more or less liable to it.

"The late Dr. La Roche, of Philadelphia, informed me that he had frequently seen this disease in the French Colonies at St. Domingo, and in

persons of different ages; that its progress was very rapid, and, probably from its frequency, that it was generally considered peculiar to the climate and altogether incurable.

"In the United States of America, this malady is much less frequent among the natives than amongst those foreigners who arrive there with a robust constitution and sound teeth, as the former are generally of less plethoric habits, and more subject than the latter to those diseases which primarily affect the teeth, and produce secondary affections of the parts connected with them: still, however, the Americans are often subject to its destructive ravages." pp. 270—74.

"For a considerable time, even for many years, the symptoms accompanying this disease may entirely escape the attention not only of the patient, but that of a surgical attendant, not well acquainted with this disease.

"The matter which is discharged, is, in the first stage of the disease, very trifling, and constantly removed by the saliva and by mastication; and the inconvenience and pain accompanying the malady are so slight, and the progress of it so gradual and regular, that it may sometimes go on, even for ten years and upwards before it is observed, or the least suspected by the patient to be a source of danger and injury, either to his teeth, or to his general health.

"Indeed, when it has already committed considerable ravages, and arrived at an advanced state, the local inconvenience and pain are generally far less evident and extensive than its morbid effects upon the general system; in consequence of which, the local disease is not unfrequently considered symptomatic, and again from this cause erroneously disregarded and permitted to proceed in its more rapid devastation.

"When the malady has arrived at that state, however, when all the periosteum and alveoli, together with the gums, are more or less inflamed, considerable pain may sometimes affect the diseased parts, and the irritation produced upon the whole system is very great, and sometimes dangerous.

"From that peculiar sympathy existing between the teeth and their relative parts, and between these and the general constitution, the whole nervous system is kept in a state of more or less excitement, and the same symptoms and nervous derangements, as are produced by dead roots and teeth, are very frequent consequences of the local disease.

"Such teeth, however, as are so much deprived of their periosteum and sockets as to be rendered loose, produce even much more violent irritation upon the general nervous system, than such as are dead and diseased: the malady, thus aggravated by many loose teeth, is, in this advanced state, almost invariably accompanied by local and general symptomatic affections of some kind or other; viz: chronic pains in all the teeth and their relative parts, rheumatism, pains and symptomatic diseases of those parts of the system as are most nearly connected with the teeth and gums: such as, diseases and inflammation of the glands, soreness of the throat,

various kinds of head-ache, pain of the face, tic douleureux, inflammation and diseases of the eyes, ear-ache, defective smell and taste, and not unfrequently, indeed, this malady is also accompanied with pain and affections in very distant parts of the body; as dyspepsia, and derangement of the alimentary canal, &c.

"Indeed, so great is the morbid influence of this malady upon the general system, that after a perfect cure of the local disease has been effected, not only all these symptomatic affections subside, but the general health, for the first year or two, invariably improves in a most surprising manner, and the constitution recovers that natural strength and vigour, of which it had been deprived perhaps for ten or fifteen years.

"This recovery, being dependent on the slow restoration of the healthy functions of the sockets and jaw-bones, which always labour under extensive diseased action during the local disease, is, however, so gradual as generally to deceive the patient as well as the medical attendant, and is consequently attributed to very erroneous causes, and I have, not unfrequently, found the greatest difficulty to impress the patient with the only just and rational notions on the subject." pp. 275—78.

We have only room to copy a general view of the treatment which our author recommends.

"I have always succeeded in curing this disease in all its different stages, by the mode of treatment which I am now about to describe.

"It consists, first, in checking the diseased action which has become habitual, and in producing a general healthy disposition in the diseased parts, and those connected with them, by removing the actual causes; and, secondly, in preventing their recurrence.

"The first object is to be obtained by extracting those teeth, of which the periosteum and alveoli are too much affected by the disease to be capable of permanent restoration, and by a complete removal of the tartar and glutinous matter covering the remaining teeth and their exposed necks, which produces the irritation in the alveolar processes.

"The second indication will be answered by removing such remote causes as may still exist, or if this cannot be done, by counteracting their influence. When these are of a general nature, as scurvy, scrofula, or the effects of mercury, constitutional remedies combined with topical means are required. When local, however, that treatment only, to which I now beg to draw the particular attention of the reader, is demanded.

"The remedies to be prescribed for the removal of the local causes mentioned, are of very great importance, and require the most particular and decisive consideration.

"Such teeth as excite constant irritation from their unnatural irritation, either on the opposite teeth or on the gums and alveoli, should be removed, or the effects of their irregularities prevented.

"Operations injudiciously performed require such remedies as will remove the injurious effects resulting from them. When the individual has

been neglectful in cleansing the teeth, or when this has been done in an improper manner, great attention is required on the part of the dentist to prevent the accumulation of tartar.

"With the foregoing measures may be combined the use of some astringent or tonic washes, such as diluted tincture of peruvian bark, or myrrh, which I have found very serviceable; but all powerfully stimulant tinctures should be avoided altogether, or used with the utmost caution and judgment." pp. 283—85.

The next chapter, a long one, is on the extraction of teeth; in which the subject is treated with decided ability. The succeeding chapter relates to the treatment necessary after the operation. Among the accidents, consequent upon it, we shall refer to hæmorrhage only. Our author's method of managing it, presents nothing new; but it is proper to give the testimony of so experienced a practitioner.

"This accident may be generally prevented by a careful performance of the operation, and by encouraging the natural bleeding, following the extraction of a tooth, by the free use of warm water only; and in cases where a hæmorrhage is apprehended, by the use of the water as warm as the patient can comfortably bear in his mouth.

"The surgical means that should be employed, and principally depended on for stopping the bleeding, is mechanical pressure; and I confidently assert that if this simple remedy is judiciously applied, it will never fail to prove perfectly successful; and will not only render the accident harmless, but even in those instances in which it is not occasioned by an improper operation or unnecessary violence, the bleeding will be productive of beneficial effects to the diseased state of the mouth, as well as to the constitution generally." p. 371.

The sixth chapter is on the operation of stopping carious teeth; and of course addressed more especially to practical dentists. Various metals are used as plugs for teeth, such as lead, tin, silver and gold. The last is far preferable to all the rest; and should be as free as possible from any kind of alloy.

In his closing chapter our Author points out his method of treating the lining membrane of the tooth, when caries has extended to the central cavity. The indications are:

"1. To put a stop to the caries, and consequently to prevent the irritation upon the internal membrane of the tooth.

"2. To suppress the hæmorrhage, and to cure the wound of the membrane, if it be wounded.

"3. To protect the membrane artificially against the action of all foreign agents." p. 433.

After all the caries is completely extirpated, if the lining membrane should not be wounded, we may proceed, at once, to plug the cavity. But if hæmorrhage occur, the *actual cautery*, according to Dr. Kœcker, is the grand resource of the art. After the eschar, which it occasions, has sloughed off, he applies to the membrane a thin plate of lead, upon which the gold is to be introduced in the usual manner. Lead, in his opinion, is less irritating to a sensible part than gold; but having already extended our extracts from his interesting work as far as is compatible with our limits, we shall not transcribe the facts on which his conclusions rest, and close by recommending his work to all who desire correct theoretical and practical information on diseases of the Mouth. D.

ORIGINAL INTELLIGENCE AND NOTICES.

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1. TAKING UP THE CAROTID ARTERY.

Dr. Maclay Awl, of *Somerset, Ohio*, performed this operation, during the last spring, upon a female child æt. 12 years; preparatory to the extirpation of a large semi-ossific tumour, situated upon the right half of the inferior maxillary bone, including its angle and processes. It also involved the paroted gland, most of the right sup. maxillary and maler bones, and the zygomatic arch.

The patient was evidently scrofulous, though apparently in tolerable health, but disposed to leanness. The tumour commenced without any obvious cause, by a slight uneasiness about the lower jaw, supposed, at first, to be nothing more than a common tooth-ache. Finally a firm, round tumour presented itself upon the lower jaw, under the cheek, which resisted every remedy used for its discussion. A consultation of Physicians, 18 months after its first appearance, decided in favor of an operation, by first tying the carotid artery, and then dissecting out the tumour.

Doctor M. A. commenced the operation, as proposed, by first securing the artery, which he accomplished with little difficulty. In this he manifested an accurate knowledge of the anatomy of the human neck, and a deliberation, in operating, seldom displayed by so young a surgeon.

After separating the artery from the vein and nerve, he passed a blunt probe, properly curved, and armed with a long ***silk ligature***, under the artery. The probe was released by cutting the ligature, which was equally divided—then separated three fourths of an inch upon the vessel, and tied; the lower one being doubly secured, the artery was divided.

The extirpation of the tumour was now commenced by a crucial incision through its greatest diameters, down to its morbid capsule. The excision was embarrassed by the firm, bony attachments of the diseased, to the healthy parts. Great force and violence was required to remove the tumour, which was imperfectly accomplished, by piecemeal, within two hours from the commencement, including the taking up of the artery. The extracted fragments weighed two and a half pounds, and consisted, mostly, of bone and cartilage.

At the commencement of the dissection, the facial artery was divided, which bled but for a moment. The infra orbital nerve was cut, with no particular increase of pain. The paroted gland was now attacked and with great difficulty brought out. The hæmorrhage, when bisecting the arteries passing through and around the gland, was for a moment, profuse and alarming: it, however, soon ceased. The division of the portio dura gave great pain.

The exhausted condition of the patient forbade any farther attempt at removing a still remaining portion of disease, situated on the inner side of the angle of the inferior maxillary, involving the root of the tongue; but it was hoped by the Doctor, that the destruction of its nourishing blood vessels, would prevent a re-growth of the tumour.

The wound was dressed with a number of hare-lip sutures, formed with tailor's blunts and silk, together with adhesive strips, compresses and bandages. Her recovery was rapid, and in a short time she was enabled to chew her food, and resume the employment of her years. W.

2. AMPUTATION OF THIGH WITH A SINGLE FLAP.

Dr. DUBOIS, of Warren county, Ohio, has recently applied to the thigh, the method of operating which is pursued in amputating the leg above the ancle joint, with a *single flap*. His object was to throw the entire cicatrix on the circumference of the stump; so that the weight of the body, when an artificial leg should be used, might rest upon the sound integuments. To this end he made, from a point on the outer side of the limb, a curved incision downwards and forwards; and, from a corresponding point on the inner side, another, causing the two to meet in front. He then dissected up a semicircular flap, and made his circular cut to the bone, immediately below the lateral points where his first incisions were begun. The operation was completed in the usual way, and the wound healed kindly by the first intention.

We have recently had on opportunity of examining the limb of his patient, and found the seam comparatively limited in its extent, smooth, firm, and quite on the margin of the stump; so that the object proposed to himself, by the operator, was perfectly accomplished. D.